

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION	
CERTIFICATE OF WAIVER OR AUTHORIZATION	
San Diego County Sheriff's Department	Part 91
9621 Ridge Haven Court San Diego, CA 92123	
This certificate is issued for the operations specifically described herein after. No person shall conduct any operation pursuant to the authority of this certificate except in accordance with the standard and special provisions contained in this certificate, and such other requirements of the Federal Aviation Regulations not specifically waived by this certificate.	
OPERATIONS AUTHORIZED Operation of the DJI Phantom 2 Unmanned Aircraft System (UAS) in Class B,D,E and G airspace, at or below 400 feet Above Ground Level (AGL) within the confines of San Diego County, CA excluding Restricted Airspace R-2503 A&B (when in use) as depicted in Attachment 1, under the jurisdiction of Los Angeles Air Route Traffic Control Center (Los Angeles ARTCC), Southern California Terminal Radar Approach Control Facility (SOCAL TRACON), Mc McLellan-Palomar Airport Traffic Control Tower (CRQ ATCT), Miramar Marine Corps Air Station (NKX ATCT), Ramona Airport Traffic Control Tower (RNM ATCT), Gillespie Field Air Traffic Control Tower (SEE ATCT), Montgomery-Gibbs Executive Air Traffic Control Tower (MYF ATCT), North Island NAS Airport Traffic Control Tower (NZY ATCT), Imperial Beach NOLF Airport Traffic Control Tower (NRS ATCT), Brown Field Municipal Airport Traffic Control Tower (SDM ATCT), and Camp Pendleton Airport Traffic Control Tower/Radar Air Traffic Control Facility (KNFG ATCT/RATCF), See Special Provisions and attachments.	
LIST OF WAIVED REGULATIONS BY SECTION AND TITLE N/A	
STANDARD PROVISIONS	
1. A copy of the application made for this certificate shall be attached and become a part hereof. 2. This certificate shall be presented for inspection upon the request of any authorized representative of the Federal Aviation Administration, or of any State or municipal official charged with the duty of enforcing local laws or regulations. 3. The holder of this certificate shall be responsible for the strict observance of the terms and provisions contained herein. 4. This certificate is nontransferable.	
Note-This certificate constitutes a waiver of those Federal rules or regulations specifically referred to above. It does not constitute a waiver of any State law or local ordinance.	
SPECIAL PROVISIONS	
Special Provisions are set forth and attached.	
This certificate 2016-WSA-185 effective from November 24, 2017 through November 23, 2019 and is subject to cancellation at any time upon notice by the Administrator or his/her authorized representative. <div style="text-align: center;"> BY DIRECTION OF THE ADMINISTRATOR </div>	
<u>FAA Western Service Center AJV-W2</u> <small>(Region)</small>	<u>Brian J. Johnson</u> <small>(Signature)</small>
<u>November 24, 2017</u> <small>(Date)</small>	<u>(A) Manager, Operations Support Group</u> <small>(Title)</small>

COA Number:2016-WSA-185-COA

Issued To: San Diego Sheriff's Department, referred herein as the "proponent"

Address: 9621 Ridge Haven Court
San Diego, CA 92123

Activity: Operation of the DJI Phantom 2 Unmanned Aircraft System (UAS) in Class B,D,E and G airspace, at or below 400 feet Above Ground Level (AGL) within the confines of San Diego County, CA excluding Restricted Airspace R-2503 A&B (when in use) as depicted in Attachment 1, under the jurisdiction of Los Angeles Air Route Traffic Control Center (Los Angeles ARTCC),Southern California Terminal Radar Approach Control Facility (SOCAL TRACON), Mc McLellan-Palomar Airport Traffic Control Tower (CRQ ATCT), Miramar Marine Corps Air Station (NKX ATCT), Ramona Airport Traffic Control Tower (RNM ATCT), Gillespie Field Airport Traffic Control Tower (SEE ATCT), Montgomery-Gibbs Executive Airport Traffic Control Tower (MYF ATCT) , North Island NAS Airport Traffic Control Tower (NZY ATCT), Imperial Beach NOLF Airport Traffic Control Tower (NRS ATCT), Brown Field Municipal Airport Traffic Control Tower (SDM ATCT), and Camp Pendleton Airport Traffic Control Tower/Radar Air Traffic Control Facility (KNFG ATCT/RATCF), See Special Provisions and attachments.

Purpose: To prescribe UAS operating requirements in the National Airspace System (NAS) for the purpose of training and Operational Missions.

Dates of Use: This COA is valid from November 24, 2016 through November 23, 2019. Should a renewal become necessary, the proponent shall advise the Federal Aviation Administration (FAA), in writing, no later than 45 business days prior to the requested effective date.

Public Aircraft:

1. A public aircraft operation is determined by statute, 49 USC §40102(a)(41) and §40125.
2. All public aircraft flights conducted under a COA must comply with the terms of the statute.
3. All flights must be conducted per the declarations submitted on CAPS on-line.

STANDARD PROVISIONS

A. General:

The review of this activity is based upon current understanding of UAS operations and their impact in the NAS. This COA will not be considered a precedent for future operations. (As changes in or understanding of the UAS industry occur, limitations and conditions for operations will be adjusted.)

All personnel connected with the UAS operation must read and comply with the contents of this authorization and its provisions.

A copy of the COA including the special limitations must be immediately available to all operational personnel at each operating location whenever UAS operations are being conducted.

This authorization may be canceled at any time by the Administrator, the person authorized to grant the authorization, or the representative designated to monitor a specific operation. As a general rule, this authorization may be canceled when it is no longer required, there is an abuse of its provisions, or when unforeseen safety factors develop. Failure to comply with the authorization is cause for cancellation. The proponent will receive written notice of cancellation.

During the time this COA is approved and active, a site safety evaluation/visit may be accomplished to ensure COA compliance, assess any adverse impact on ATC or airspace, and ensure this COA is not burdensome or ineffective. Deviations, accidents/incidents/mishaps, complaints, etc. will prompt a COA review or site visit to address the issue. Refusal to allow a site safety evaluation/visit may result in cancellation of the COA. Note: This section does not pertain to agencies that have other existing agreements in place with the FAA.

B. Airworthiness Certification:

The unmanned aircraft must be shown to be airworthy to conduct flight operations in the NAS. The San Diego Sheriff's Department has made its own determination that the DJI Phantom 2 unmanned aircraft is airworthy. The DJI Phantom 2 must be operated in strict compliance with all provisions and conditions contained in the Airworthiness Safety Release, including all documents and provisions referenced in the COA application.

1. A configuration control program must be in place for hardware and/or software changes made to the UAS to ensure continued airworthiness. If a new or revised Airworthiness Release is generated as a result of changes in the hardware or software affecting the operating characteristics of the UAS, notify the UAS Integration Office of the changes as soon as practical.
 - a. Software and hardware changes should be documented as part of the normal maintenance procedures. Software changes to the aircraft and control station as well as hardware system changes are classified as major changes unless the agency has a

formal process, accepted by the FAA. These changes should be provided to the UAS Integration office in summary form at the time of incorporation.

- b. Major modifications or changes, performed under the COA, or other authorizations that could potentially affect the safe operation of the system must be documented and provided to the FAA in the form of a new AWR, unless the agency has a formal process, accepted by the FAA.
 - c. All previously flight proven systems to include payloads, may be installed or removed as required, and that activity recorded in the unmanned aircraft and ground control stations logbooks by persons authorized to conduct UAS maintenance. Describe any payload equipment configurations in the UAS logbook that will result in a weight and balance change, electrical loads, and or flight dynamics, unless the agency has a formal process, accepted by the FAA.
 - d. For unmanned aircraft system discrepancies, a record entry should be made by an appropriately rated person to document the finding in the logbook. No flights may be conducted following major changes, modifications or new installations unless the party responsible for certifying airworthiness has determined the system is safe to operate in the NAS and a new AWR is generated, unless the agency has a formal process, accepted by the FAA. The successful completion of these tests must be recorded in the appropriate logbook, unless the agency has a formal process, accepted by the FAA.
- 2. The DJI Phantom 2 must be operated in strict compliance with all provisions and conditions contained within the spectrum analysis assigned and authorized for use within the defined operations area.
 - 3. All items contained in the application for equipment frequency allocation must be adhered to, including the assigned frequencies and antenna equipment characteristics. A ground operational check to verify the control station can communicate with the aircraft (frequency integration check) must be conducted prior to the launch of the unmanned aircraft to ensure any electromagnetic interference does not adversely affect control of the aircraft.
 - 4. The use of a Traffic Collision Avoidance System (TCAS) in any mode while operating an unmanned aircraft is prohibited.

C. Operations:

1. Unless otherwise authorized as a special provision, a maximum of one unmanned aircraft will be controlled:
 - a. In any defined operating area,
 - b. From a single control station, and
 - c. By one pilot at a time.
2. A Pilot-in-Command (PIC) is the person who has final authority and responsibility for the operation and safety of flight, has been designated as PIC before or during the flight, and holds the appropriate category, class, and type rating, if appropriate, for the conduct of the flight. The responsibility and authority of the PIC as described by 14 CFR 91.3, Responsibility and Authority of the Pilot-in-Command, apply to the unmanned aircraft PIC. The PIC position may rotate duties as necessary with equally qualified pilots. The individual designated as PIC may change during flight. **Note:** The PIC can only be the PIC for one aircraft at a time. For Optionally Piloted Aircraft (OPA), PIC must meet UAS guidance requirements for training, pilot licensing, and medical requirements when operating OPA as a UAS.
3. The PIC must conduct a pre-takeoff briefing as applicable prior to each launch. The briefing should include but is not limited to the
 - a. Contents of the COA,
 - b. Altitudes to be flown,
 - c. Mission overview including handoff procedures,
 - d. Frequencies to be used,
 - e. Flight time, including reserve fuel requirements,
 - f. Contingency procedures to include lost link, divert, and flight termination, and
 - g. Hazards unique to the flight being flown.

Note: Flight Crew Member (UAS). In addition to the flight crew members identified in 14 CFR Part 1, Definitions and Abbreviations, an Unmanned Aircraft System flight crew members include pilots, sensor/payload operators, and visual observers and may include other persons as appropriate or required to ensure safe operation of the aircraft.

4. All operations will be conducted in compliance with Title 14 CFR Part 91. Special attention should be given to:
 - a. § 91.3 Responsibility and authority of the pilot in command
 - b. § 91.13 Careless or reckless operation
 - c. § 91.17 Alcohol or drugs
 - d. § 91.103 Preflight Actions
 - e. § 91.111 Operating near other aircraft.

- f. § 91.113 Right-of-way rules: Except water operations
 - g. § 91.115 Right-of-way rules: Water operations
 - h. § 91.119 Minimum safe altitudes: General
 - i. § 91.123 Compliance with ATC clearances and instructions.
 - j. § 91.133 Restricted and prohibited areas
 - k. § 91.137 Temporary flight restrictions in the vicinity of disaster/hazard areas
 - l. § 91.145 Management of aircraft operations in the vicinity of aerial demonstrations and major sporting events
 - m. § 91.151 Fuel requirements for flight in VFR conditions
 - n. § 91.155 Basic VFR weather minimums
 - o. § 91.159 VFR cruising altitude or flight level
 - p. § 91.209 Aircraft Lights
 - q. § 91.213 Inoperative instruments and equipment
 - r. § 91.215 ATC transponder and altitude reporting equipment and use
 - s. Appendix D to Part 91—Airports/Locations: Special Operating Restrictions
5. Unless otherwise authorized as a special provision, all operations must be conducted in visual meteorological conditions (VMC) during daylight hours in compliance with Title 14 of the Code of Federal Regulations (CFR) Part 91 §91.155 and the following:
6. Special Visual Flight Rules (VFR) operations are not authorized:
- a. VFR cloud clearances specified in 14 CFR Part 91 §91.155, must be maintained, except in Class G airspace where Class E airspace visibility requirements must be applied, but not less than 3 statute miles (SM) flight visibility and 1000' ceiling.
 - b. Flights conducted under Instrument Flight Rules (IFR) in Class A airspace shall remain clear of clouds. NOTE: Deviations from IFR clearance necessary to comply with this provision must have prior ATC approval.
 - c. Chase aircraft must maintain 5 NM flight visibility.
7. Night operations are prohibited unless otherwise authorized as a special provision.
8. Operations (including lost link procedures) must not be conducted over populated areas, heavily trafficked roads, or an open-air assembly of people.

D. Air Traffic Control (ATC) Communications:

1. The pilot and/or PIC will maintain direct, two-way communication with ATC and have the ability to maneuver the unmanned aircraft in response to ATC instructions, unless addressed in the Special Provision Section:

When required, ATC will assign a radio frequency for air traffic control during flight. The use of land-line and/or cellular telephones is prohibited as the primary means for in-flight communication with ATC.

2. The PIC must not accept an ATC clearance requiring the use of visual separation, sequencing, or visual approach.
3. When necessary, transit of airways and routes must be conducted as expeditiously as possible. The unmanned aircraft must not loiter on Victor airways, jet routes, Q and T routes, IR routes, or VR routes.
4. For flights operating on an IFR clearance at or above 18,000 feet mean sea level (MSL), the PIC must ensure positional information in reference to established National Airspace System (NAS) fixes, NAVAIDs, and/or waypoints is provided to ATC. The use of latitude/longitude positions is not authorized, except oceanic flight operations.
5. If equipped, the unmanned aircraft must operate with:
 - a. An operational mode 3/A transponder with altitude encoding, or mode S transponder (preferred) set to an ATC assigned squawk
 - b. Position/navigation and anti-collision lights on at all times during flight unless stipulated in the special provisions or the proponent has a specific exemption from 14 CFR Part 91.209.
6. Operations that use a Global Positioning System (GPS) for navigation must check Receiver Autonomous Integrity Monitoring (RAIM) notices prior to flight operations. Flight into a GPS test area or degraded RAIM is prohibited for those aircraft that use GPS as their sole means for navigation.

E. Safety of Flight:

1. The proponent or delegated representative is responsible for halting or canceling activity in the COA area if, at any time, the safety of persons or property on the ground or in the air is in jeopardy, or if there is a failure to comply with the terms or conditions of this authorization.
2. ATC must be immediately notified in the event of any emergency, loss and subsequent restoration of command link, loss of PIC or observer visual contact, or any other malfunction or occurrence that would impact safety or operations.
3. Sterile Cockpit Procedures:
 - a. Critical phases of flight include all ground operations involving:

- (1) Taxi (movement of an aircraft under its own power on the surface of an airport).
 - (2) Take-off and landing (launch or recovery).
 - (3) All other flight operations in which safety or mission accomplishment might be compromised by distractions.
 - b. No crewmember may perform any duties during a critical phase of flight not required for the safe operation of the aircraft.
 - c. No crewmember may engage in, nor may any PIC permit, any activity during a critical phase of flight which could:
 - (1) Distract any crewmember from the performance of his/her duties or
 - (2) Interfere in any way with the proper conduct of those duties.
 - d. The pilot and/or the PIC must not engage in any activity not directly related to the operation of the aircraft. Activities include, but are not limited to, operating UAS sensors or other payload systems.
 - e. The use of cell phones or other electronic devices is restricted to communications pertinent to the operational control of the unmanned aircraft and any required communications with Air Traffic Control.
4. See-and-Avoid: Unmanned aircraft have no on-board pilot to perform see-and-avoid responsibilities; therefore, when operating outside of active restricted and warning areas approved for aviation activities, provisions must be made to ensure an equivalent level of safety exists for unmanned operations. Adherence to 14 CFR Part 91 §91.111, §91.113 and §91.115, is required:
- a. The proponent and/or delegated representatives are responsible at all times for collision avoidance with all aviation activities and the safety of persons or property on the surface with respect to the UAS.
 - b. UAS pilots will ensure there is a safe operating distance between aviation activities and unmanned aircraft at all times.
 - c. Any crew member responsible for performing see-and-avoid requirements for the UA must have and maintain instantaneous communication with the PIC.
 - d. UA operations will only be conducted within Reduced Vertical Separation Minimum (RVSM) altitudes, when appropriately equipped or having received a clearance under an FAA deviation. **NOTE:** UA operations should not plan on an en-route clearance in RVSM altitudes, without being RVSM equipped.
 - e. Visual observers must be used at all times except in Class A, airspace, active Restricted Areas, and Warning areas designated for aviation activities:
 - (1) Observers may either be ground-based or in a chase plane.

- (2) If the chase aircraft is operating more than 100 feet above/below and/or more than one half (1/2) NM laterally of the unmanned aircraft, the chase aircraft PIC will advise the controlling ATC facility.
- f. The PIC is responsible to ensure visual observers are:
 - (1) Able to see the aircraft and the surrounding airspace throughout the entire flight, and
 - (2) Able to provide the PIC with the UA's flight path, and proximity to all aviation activities and other hazards (e.g., terrain, weather, structures) sufficiently to exercise effective control of the UA to:
 - (a) Comply with CFR Parts 91.111, 91.113 and 91.115, and
 - (b) Prevent the UA from creating a collision hazard.
5. Observers must be able to communicate clearly to the pilot any instructions required to remain clear of conflicting traffic, using standard phraseology as listed in the Aeronautical Information Manual when practical.
6. A PIC may rotate duties as necessary to fulfill operational requirements; a PIC must be designated at all times.
7. Pilots flying chase aircraft must not concurrently perform observer or UA pilot duties.
8. Pilot and observers must not assume concurrent duties as both pilot and observer.
9. The required number of ground observers will be in place during flight operations.
10. The use of multiple successive observers (daisy chaining) is prohibited unless otherwise authorized as a special provision.
11. The dropping or spraying of aircraft stores, or carrying of hazardous materials (including ordnance) outside of active Restricted, Prohibited, or Warning Areas approved for aviation activities is prohibited unless specifically authorized as a special provision.

F. Crewmember Requirements:

1. The proponent shall conduct and document initial training at a specific training site that will allow for the conduct of scenario-based training exercises. This training should foster a high level of flight proficiency and promote efficient, standardized coordination among pilots, visual observers, and ground crew members. To ensure safety and compliance, the training site should be well clear of housing areas, roads, non-participating persons, and watercraft. When the proponent has determined that sufficient training scenarios have been completed to achieve an acceptable level of competency, the proponent is authorized to conduct UAS public aircraft operations in accordance with Title 49 USC §§ Part 40125 at any location within the National Airspace System under the provisions of this COA.

2. All crewmembers associated with the operation of the unmanned aircraft, including chase operations, must be qualified or must be receiving formal training under the direct supervision of a qualified instructor, who has at all times, responsibility for the operation of the unmanned aircraft.
3. Pilots and observers must have an understanding of, and comply with, Title 14 Code of Federal Regulations, and/or agency directives and regulations, applicable to the airspace where the unmanned aircraft will operate.
4. With the exception of operations conducted in accordance with the public aircraft statute as promulgated in 49 U.S.C. § 40102(a)(41), Pilots, supplemental pilots, and observers must maintain a current second class (or higher) airman medical certificate that has been issued under 14 CFR Part 67, or an FAA accepted agency equivalent based on the application with the exception of operations conducted in accordance with the public aircraft statute as promulgated in 49 U.S.C. § 40102(a)(41).
5. At a minimum, the use of alcohol and/or drugs in violation of 14 CFR Part 91 §91.17 applies to UA pilots and observers.
6. At a minimum, observers must receive training on rules and responsibilities described in 14 CFR Part 91 §91.111, §91.113 and §91.115, regarding cloud clearance, flight visibility, and the pilot controller glossary, including standard ATC phraseology and communication.
7. Recent Pilot Experience (Currency). With the exception of operations conducted in accordance with the public aircraft statute as promulgated in 49 U.S.C. § 40102(a)(41) the proponent must provide documentation, upon request, showing the pilot/supplemental pilot/PIC maintains an appropriate level of recent pilot experience in either the UAS being operated or in a certified simulator. At a minimum, he/she must conduct three takeoffs (launch) and three landings (recovery) in the specific UAS within the previous 90 days (excluding pilots who do not conduct launch/recovery during normal/emergency operations). If a supplemental pilot assumes the role of PIC, he/she must comply with PIC rating requirements.
8. A PIC and/or supplemental pilot have the ability to assume the duties of an internal or an external UAS pilot at any point during the flight.
9. A PIC may be augmented by supplemental pilots.
10. PIC Ratings.

The PIC must hold, at a minimum, a current FAA remote pilot airman certificate or the FAA accepted agency equivalent, based on the application or 14 CFR Part 61.under all operations with the exception of operations conducted in accordance with the public aircraft statute as promulgated in 49 U.S.C. § 40102(a)(41).

11. PIC Recent Flight Experience (Currency):

- a. For those operations that require a certificated pilot or FAA accepted agency equivalent, based on the application with the exception of operations conducted in accordance with the public aircraft statute as promulgated in 49 U.S.C. § 40102(a)(41);, the PIC must have flight reviews 14 CFR Part 61.56, and if the pilot conducts takeoff, launch, landing or recovery the PIC must maintain recent pilot experience in manned aircraft per 14 CFR Part 61.57;; Recent Flight Experience: Pilot in Command..
- b. For operations approved for night or IFR through special provisions, the PIC must maintain minimum recent pilot experience per 14 CFR Part 61.57, Recent Flight Experience: Pilot in Command, as applicable.

12. Supplemental pilots must have, at a minimum, successfully completed the remote pilot airman certificate or the FAA accepted agency equivalent, based on the application with the exception of operations conducted in accordance with the public aircraft statute as promulgated in 49 U.S.C. § 40102(a)(41). The remote pilot airman certificate is valid for two years from the date of completion, at which time the written examination must be repeated. If a supplemental pilot assumes the role of PIC, he/she must comply with PIC rating, currency, medical, and training requirements listed in this document.

13. Ancillary personnel such as systems operators or mission specialists must be thoroughly familiar with and possess operational experience of the equipment being used. If the systems being used are for observation and detection of other aircraft for collision avoidance purposes, personnel must be thoroughly trained on collision avoidance procedures and techniques and have direct communication with the UAS pilot, observer, and other crewmembers.

14. The Agency will ensure that Crew Resource Management (CRM) training is current for all crew members before flying operational or training missions. The CRM program must consist of initial training, as well as CRM recurrent training during every recurrent training cycle, not to exceed a 12 month interval between initial training and recurrent training or between subsequent recurrent training sessions.

G. Notice to Airmen (NOTAM).

1. A distant (D) NOTAM must be issued when unmanned aircraft operations are being conducted. This requirement may be accomplished:
 - a. Through the proponent's local base operations or NOTAM issuing authority, or
 - b. By contacting the NOTAM Flight Service Station at 1-877-4-US-NTMS (1-877-487-6867) not more than 72 hours in advance, but not less than 48 hours prior to the operation, unless otherwise authorized as a special provision. The issuing agency will require the:
 - (1) Name and address of the pilot filing the NOTAM request.
 - (2) Location, altitude, or operating area.
 - (3) Time and nature of the activity.

2. For proponents filing their NOTAM with the Department of Defense: The requirement to file with an Automated Flight Service Station (AFSS) is in addition to any local procedures/requirements for filing through the Defense Internet NOTAM Service (DINS).

H. Data Reporting:

1. Documentation of all operations associated with UAS activities is required regardless of the airspace in which the UAS operates. This requirement includes COA operations within Special Use airspace. NOTE: Negative (zero flights) reports are required.
2. The proponent must submit the following information through UAS CAPS on-Line on a monthly basis:
 - a. The number of flights conducted under this COA. (A flight during which any portion is conducted in the NAS must be counted only once, regardless of how many times it may enter and leave Special Use airspace between takeoff and landing).
 - b. Aircraft operational hours per flight.
 - c. Ground control station operational hours in support of each flight, to include Launch and Recovery Element (LRE) operations.
 - d. Pilot duty time per flight.
 - e. Equipment malfunctions (hardware/software) affecting either the aircraft or ground control station.
 - f. Deviations from ATC instructions and/or Letters of Agreement/Procedures.
 - g. Operational/coordination issues.
 - h. The number and duration of lost link events (control, vehicle performance and health monitoring, or communications) per aircraft per flight.

I. Incident/Accident/Mishap Reporting.

Immediately after an incident or accident, and before additional flight under this COA, the proponent must provide initial notification of the following to the FAA via the UAS CAPS on-Line forms (Incident/Accident):

1. All accidents/mishaps involving UAS operations where any of the following occurs:
 - a. Fatal injury, where the operation of a UAS results in a death occurring within 30 days of the accident/mishap.
 - b. Serious injury, where the operation of a UAS results in a hospitalization of more than 48 hours, the fracture of any bone (except for simple fractures of fingers, toes, or nose), severe hemorrhage or tissue damage, internal injuries, or second or third-degree burns.
 - c. Total unmanned aircraft loss.

- d. Substantial damage to the unmanned aircraft system where there is damage to the airframe, power plant, or onboard systems that must be repaired prior to further flight.
 - e. Damage to property, other than the unmanned aircraft.
2. Any incident/mishap that results in an unsafe/abnormal operation including but not limited to:
- a. A malfunction or failure of the unmanned aircraft's on-board flight control system (including navigation).
 - b. A malfunction or failure of ground control station flight control hardware or software (other than loss of control link).
 - c. A power plant failure or malfunction.
 - d. An in-flight fire.
 - e. An aircraft collision.
 - f. Any in-flight failure of the unmanned aircraft's electrical system requiring use of alternate or emergency power to complete the flight.
 - g. A deviation from any provision contained in the COA.
 - h. A deviation from an ATC clearance and/or Letter(s) of Agreement/Procedures.
 - i. A lost control link event resulting in:
 - (1) Fly-away, or
 - (2) Execution of a pre-planned/unplanned lost link procedure.
3. Initial reports must contain the information identified in the CAPS-on-Line Accident/Incident Report.
4. Follow-on reports describing the accident/incident/mishap(s) must be submitted by providing copies of proponent aviation accident/incident reports upon completion of safety investigations. Such reports must be limited to factual information only where privileged safety or law enforcement information is included in the final report.
5. Public-use agencies other than those which are part of the Department of Defense are advised that the above procedures are not a substitute for separate accident/incident reporting required by the National Transportation Safety Board under 49 CFR Part 830 §830.5.
6. This COA is issued with the provision that the FAA be permitted involvement in the proponent's incident/accident/mishap investigation as prescribed by FAA Order 8020.11, Aircraft Accident and Incident Notification, Investigation, and Reporting.

FLIGHT STANDARDS SPECIAL PROVISIONS

A. Contingency Planning:

1. **Point Identification:** The proponent must submit contingency plans that address emergency recovery or flight termination of the unmanned aircraft (UA) in the event of unrecoverable system failure. These procedures will normally include Lost Link Points (LLP), Divert/Contingency Points (DCP) and Flight Termination Points (FTP) for each operation. LLPs and DCPs must be submitted in latitude/longitude (Lat/Long) format along with a graphic representation plotted on an aviation sectional chart (or similar format). FTPs or other accepted contingency planning measures must also be submitted in latitude/longitude (Lat/Long) format along with a graphic representation plotted on an aviation sectional chart, or other graphic representation acceptable to the FAA. The FAA accepts the LLPs, DCPs, FTPs, and other contingency planning measures, submitted by the proponent but does not approve them. When conditions preclude the use of FTPs, the proponent must submit other contingency planning options for consideration and approval. At least one LLP, DCP, and FTP (or an acceptable alternative contingency planning measure) is required for each operation. The proponent must furnish this data with the initial COA application. Any subsequent changes or modifications to this data must be provided to AJV-13 for review and consideration no later than 30 days prior to proposed flight operations.
2. **Risk Mitigation Plans:** For all operations, the proponent must develop detailed plans to mitigate the risk of collision with other aircraft and the risk posed to persons and property on the ground in the event the UAS encounters a lost link, needs to divert, or the flight needs to be terminated. The proponent must take into consideration all airspace constructs and minimize risk to other aircraft by avoiding published airways, military training routes, NAVAIDs, and congested areas. In the event of a contingency divert or flight termination, the use of a chase aircraft is preferred when the UAS is operated outside of Restricted or Warning Areas. If time permits, the proponent should make every attempt to utilize a chase aircraft to monitor the aircraft to a DCP or to the FTP. In the event of a contingency divert or flight termination, the proponent will operate in Class A airspace and Special Use airspace to the maximum extent possible to reduce the risk of collision with non-participating air traffic:
 - a. **LLP Procedures:**
 - (1) LLPs are defined as a point, or sequence of points where the aircraft will proceed and hold at a specified altitude, for a specified period of time, in the event the command and control link to the aircraft is lost. The aircraft will autonomously hold, or loiter, at the LLP until the communication link with the aircraft is restored or the specified time elapses. If the time period elapses, the aircraft may auto land, proceed to another LLP in an attempt to regain the communication link, or proceed to an FTP for flight termination. LLPs may be used as FTPs. In this case, the aircraft may loiter at the LLP/FTP until link is re-established or fuel exhaustion occurs.
 - (2) For areas where multiple or concurrent UAS operations are authorized in the same operational area, a segregation plan must be in place in the event of a simultaneous lost link scenario. The segregation plan may include altitude offsets and horizontal separation by using independent LLPs whenever possible.

b. DCP Procedures:

- (1) A DCP is defined as an alternate landing/recovery site to be used in the event of an abnormal condition that requires a precautionary landing. Each DCP must incorporate the means of communication with ATC throughout the descent and landing (unless otherwise specified in the Special Provisions) as well as a plan for ground operations and securing/parking the aircraft on the ground. This includes the availability of ground control stations capable of launch/recovery, communication equipment, and an adequate power source to operate all required equipment.
- (2) For local operations, the DCP specified will normally be the airport/facility used for launch and recovery; however, the proponent may specify additional DCPs as alternates.
- (3) For transit and/or mission operations that are being conducted in Class A airspace or Class E airspace above flight level (FL)-600, DCPs will be identified during the flight to be no further than one hour of flight time at any given time, taking into consideration altitude, winds, fuel consumption, and other factors. If it is not possible to define DCPs along the entire flight plan route, the proponent must identify qualified FTPs along the entire route and be prepared to execute flight termination at one of the specified FTPs if a return to base (RTB) is not possible.
- (4) It is preferred that specified DCPs are non-joint use military airfields, other government-owned airfields, or private-use airfields. However, the proponent may designate any suitable airfield for review and consideration.

c. Flight Termination Procedures:

- (1) Flight termination is the intentional and deliberate process of performing controlled flight into terrain (CFIT). Flight termination must be executed in the event that all contingencies have been exhausted and further flight of the aircraft cannot be safely achieved or other potential hazards exist that require immediate discontinuation of flight. FTPs or alternative contingency planning measures must be located within power off glide distance of the aircraft during all phases of flight and must be submitted for review and acceptance. The proponent must ensure sufficient FTPs or other contingency plan measures are defined to accommodate flight termination at any given point along the route of flight. The location of these points is based on the assumption of an unrecoverable system failure and must take into consideration altitude, winds, and other factors.
- (2) Unless otherwise authorized, FTPs must be located in sparsely populated areas. Except for on- or near-airport operations, FTPs will be located no closer than five nautical miles from any airport, heliport, airfield, NAVAID, airway, populated area, major roadway, oil rig, power plant, or any other infrastructure. For offshore locations, the proponent must refer to appropriate United States Coast Guard (USCG) charts and other publications to avoid maritime obstructions, shipping lanes, and other hazards. Populated areas are defined as those areas depicted in yellow on a VFR sectional chart or as determined from other sources:

- (a) It is preferred that flight termination occurs in Restricted or Warning Areas, government-owned land, or offshore locations that are restricted from routine civil use. However, the proponent may designate any suitable location for review and consideration.
- (b) The proponent is required to survey all designated areas prior to their use as an FTP. All FTPs will be reviewed for suitability on a routine and periodic basis, not to exceed six months. The proponent assumes full risk and all liability associated with the selection and use of any designated FTP.
- (c) It is desirable that the proponent receive prior permission from the land owner or using agency prior to the use of this area as an FTP. The proponent should clearly communicate the purpose and intent of the FTP.
- (d) For each FTP, plans must incorporate the means of communication with ATC throughout the descent as well as a plan for retrieval/recovery of the aircraft.
- (e) Contingency planning must take into consideration all airspace constructs and minimize risk to other aircraft by avoiding published airways, military training routes, NAVAIDs, and congested areas to the maximum extent possible.
- (f) In the event of a contingency divert or flight termination, if time permits, the use of a chase aircraft is preferred when the UA is operated outside of Restricted or Warning Areas.
- (g) In the event of a contingency divert or flight termination or other approved contingency measures, the proponent will operate in Class A airspace and Special Use airspace to the maximum extent possible to reduce the risk of collision with non-participating air traffic.

B. Night Operation Limitations:

The following measures are considered adequate to ensure an acceptable level of safety for UAS night operations.

UAS night operations are those operations that occur between the end of evening civil twilight and the beginning of morning civil twilight, as published in the American Air Almanac, converted to local time. (Note: this is equal to approximately 30 minutes after sunset until 30 minutes before sunrise.):

1. The Pilot in command must be in place 30 minutes prior to night operations to ensure dark adaptation.
2. Observers will be positioned in appropriate locations during all UAS flight operations.
3. Binoculars, night vision devices, etc., may not be used as the primary means for visual observation duties. Such devices are permitted **ONLY** for augmentation of the observer's visual capability. Visual observers must use caution to ensure the UA remains within normal visual line-of-sight. Vision assisted devices are aids to vision and should not be

confused with corrective lenses or contact lenses, which do not alter the field of view or distort vision.

4. The proponent shall maintain a “night specific” safety case with sufficient mitigations to avoid collision hazards at night. The safety case should include additional training on the lighting configuration of the UAS to ensure proper recognition during night flight operations and a performance analysis of the light emitting diode (LED) position lights installed to comply with Title 14 of the Code of Federal Regulations (14 CFR) Section 91.209. This performance analysis must ensure the position lights are of sufficient intensity, placement, and coverage to allow pilot(s) of other aircraft to determine the orientation and direction of flight of the proponent’s aircraft. If the proponent has not established a criterion to evaluate aircraft position lights they must reference the applicable sections of 14 CFR parts 23, 25, 27, or 29, relating to minimum performance standards for aircraft position lights.

C. Miscellaneous Flight Standard Provisions:

1. Unless otherwise authorized by a Certificate of Waiver issued by a Flight Standards District Office, or pursuant to an exemption to Title 14 of the Code of Federal Regulations section 91.119, the San Diego Sheriff Department may not operate an unmanned aircraft below an altitude prescribed below, except when necessary for takeoff or landing:
 - a. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.
 - b. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.
 - c. Over other than congested areas, an altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.
2. The proponent must comply with the aircraft registration requirements set forth in Title 14 Code of Federal Regulations § 47.3 prior to conducting flight operations authorized under this COA. Refer to United States Code Title 49 §§ 44101-44104 for law requiring aircraft registration in the United States.

AIR TRAFFIC CONTROL (ATC) SPECIAL PROVISIONS

A. Coordination Requirements:

1. A distant (D) Notice to Airmen would normally be filed 48 to 72 hours prior to UAS operations being conducted under this authorization. Due to the immediacy of some tactical operations, it is understood by the Federal Aviation Administration that this NOTAM notification may be reduced to no less than 30 minutes prior to these operations.
2. When filing the required NOTAM, the area of operation defined in the NOTAM must only be for the defined incident perimeter/operation area using grid map location (see attachment 2), a VOR Radial/DME fix or latitude/longitude and radius (normally one quarter (¼) mile), and the maximum altitude AGL to be flown, and not for the entire area as identified in this COA.
3. Proponent is responsible for determining which ATC facility to coordinate with based on location and time of UAS operation.
4. Proponent filing and the issuance of the required distance (D) NOTAM prior to commencing UAS operations, will serve as advance notification for Los Angeles ARTCC and SOCAL TRACON about UAS operations in all other areas of San Diego County not mentioned in ATC Special Provision A5 conducted under this authorization in Class G and E airspace. Proponent must cancel NOTAM upon completion of UAS operation. Cancellation of NOTAM will serve as notification to SOCAL TRACON and Los Angeles ARTCC of completion of flight in accordance with this provision.
5. For UAS operations within KNKX Class B airspace during those hours that KNKX ATCT is open, coordinate with KNKX ATCT a minimum of 30 minutes prior in accordance with ATC Special Provision A6:
 - (a) When KNKX ATCT is closed, and UAS operations will be within KNKX Class B airspace, coordinate UAS operation with SOCAL TRACON, a minimum of 30 minutes prior in accordance with ATC Special Provision A6.
 - (b) See ATC Facility Information for contact information - operating hours, and attachment 2 for corresponding KNKX grid map.
6. If proposed UAS operation will be within ATCT/FCT's (listed below) active class D airspace, (ATCT/FCT's are open), proponent must coordinate operational details with the facility having jurisdiction over the intended operating area a minimum of 30 minutes prior in accordance with the coordination requirements of this provision:
 - (a) During those hours when ATCT/FCT's (listed below) are closed and UAS operations will be within the lateral confines of ATCT/FCT's depicted class D or E airspace, or within NFG RATC boundaries in class G airspace (as specified in ATC Provision A12), proponent must coordinate operational details with SOCAL TRACON minimum of 30 minutes prior in accordance with the coordination requirements of this provision.

- (b) If UAS operation has been coordinated in accordance with (a) (above) and UAS operation will extend past opening time of ATCT/FCT, proponent will call affected ATCT/FCT at opening time to coordinate UAS operation.

NOTE-

See ATC Facility Information for contact information - operating hours, and Attachment 2 for corresponding ATCT/FCT grid maps.

- (c) Coordination will include:

- (1) The grid map section where UAS operation will occur (see Attachment 2 for corresponding grid maps).
- (2) Operating altitude (not to exceed 400 feet AGL). ATC may assign an altitude lower than 400 feet AGL if deemed operationally necessary for safety of flight.
- (3) The NOTAM number and the time for commencing and terminating operations.
- (4) Based on area of operation, proponent must coordinate use of communication method (i.e. direct VHF radio communication or cell phone), with ATCT. See Air Traffic Special Provision C1 for VHF frequency assignment and Air Traffic Special Provision C2-C4 for other approved methods of required communication.
- (5) Provide ATC with a reliable on-site cell number to facilitate coordination or immediate termination of UAS flight activities if deemed necessary for the safety of flight.
- (6) Coordinate a pre-determined lost link procedure, point and altitude (not to exceed 400 feet AGL) for the defined Grid Map Section being flown that will ensure UAS remains within defined Grid Map Section, remains clear of and does not cross over any active runway or taxiway or airport traffic pattern unless otherwise coordinated with ATC, and will not interfere with manned flight.
- (7) UAS PIC will notify the appropriate ATC facility(s) within 15 minutes of the end of the flight.

B. ATC FACILITY INFORMATION:

1. SOCAL TRACON: [REDACTED] – open continuous.
2. Los Angeles ARTCC: [REDACTED] - open continuous.
3. Lindbergh ATCT (KSAN)- [REDACTED] -open continuous (Class B airspace).

NOTE-

UAS OPERATIONS IN KSAN CLASS B SURFACE AIRSPACE ARE PROHIBITED AT ALL TIMES.

4. Miramar MCAS (KNKX) - [REDACTED]
 - (a) Base Operations [REDACTED] - MCAS Miramar ATCT/GCA- open 0800-0030 (M-Th), 0830- 1800 (Fri), Closed (Sat), and 1400-1800 (Sun). (Class B airspace).
 - (b) Coordinate with SOCAL TRACON when ATCT is closed.
5. Palomar ATCT (KCRQ)- [REDACTED]
 - (a) Open 0700-2200 local time (Class D airspace).
 - (b) Coordinate with SOCAL TRACON when ATCT is closed (Class G airspace).
6. Brown Field ATCT ([REDACTED])
 - (a) Open 0800-2000 local time (Class D airspace).
 - (b) Coordinate with SOCAL TRACON when ATCT is closed (Class G airspace).
7. Ramona ATCT ([REDACTED])
 - (a) Open 0800-2000 local time (Class D airspace).
 - (b) Coordinate with SOCAL TRACON when ATCT is closed (Class G airspace).
8. Montgomery Field ATCT (KMYF) [REDACTED]
 - (a) Open 0600-2100 local time (Class D airspace).
 - (b) Coordinate with SOCAL TRACON when ATCT is closed (Class G airspace).
9. Gillespie ATCT (KSEE) - [REDACTED]
 - (a) open 0700-2100 local time (Class D airspace).
 - (b) Coordinate with SOCAL TRACON when ATCT is closed (Class G airspace).
10. North Island NAS ATCT (KNZY):
 - (a) KNZY Operating Hours: Monday 0630 - Thursday 24 hrs., Friday 0000-2200, Saturday& Sunday 0800-2200.

NOTE-

Operating hours are commonly extended via NOTAM (Class D airspace).

- (b) Proponent must contact NAS North Island Operations Duty Officer (ODO) at [REDACTED] 30 minutes prior to commencing. For real time/immediate law

enforcement operations contact NZY Tower Supervisor [REDACTED] for approval and entry into NZY Class D airspace and provide operational details and cell phone number prior to all approved operations. Proponent will also call NAS North Island Operations Duty Officer/NZY Tower and advise upon completion of all approved operations.

- (c) When North Island NAS (NZY) is closed, and UAS operations are planned in Class G airspace within 4nm of either airfield, proponent will file required distant (D) NOTAM prior to commencing UAS operations, and contact SOCAL TRACON (SCT) Operations Manager at [REDACTED] 30 minutes prior to operations and coordinate UAS operation in accordance with ATC Special Provision A5.

11. Imperial Beach NOLF (KNRS) [REDACTED]

- (a) KNRS Operating Hours: Monday - Friday 0800 [REDACTED] (close at 2300 during DST, 6 months of the year), Saturday & Sunday CLOSED. (Class D airspace).
- (b) Proponent must contact NAS North Island Operations Duty Officer (ODO) at [REDACTED] 30 minutes prior to commencing. For real time/immediate law enforcement operations contact NRS Tower Supervisor [REDACTED] for approval and entry into NRS Class D airspace and provide operational details and cell phone number prior to all approved operations. Proponent will also call NAS North Island Operations Duty Officer/NRS Tower Supervisor and advise upon completion of all approved operations.
- (c) When Imperial Beach NOLF(NRS) is closed, and UAS operations are planned in Class G airspace within 4nm of either airfield, proponent will file required distant (D) NOTAM prior to commencing UAS operations, and contact SOCAL TRACON (SCT) Operations Manager at [REDACTED] 30 minutes prior to operations and coordinate UAS operation in accordance with ATC Special Provision A5.

12. MCAS Camp Pendleton Radar Air Traffic Control Facility KNFG (ATCT/RATCF):

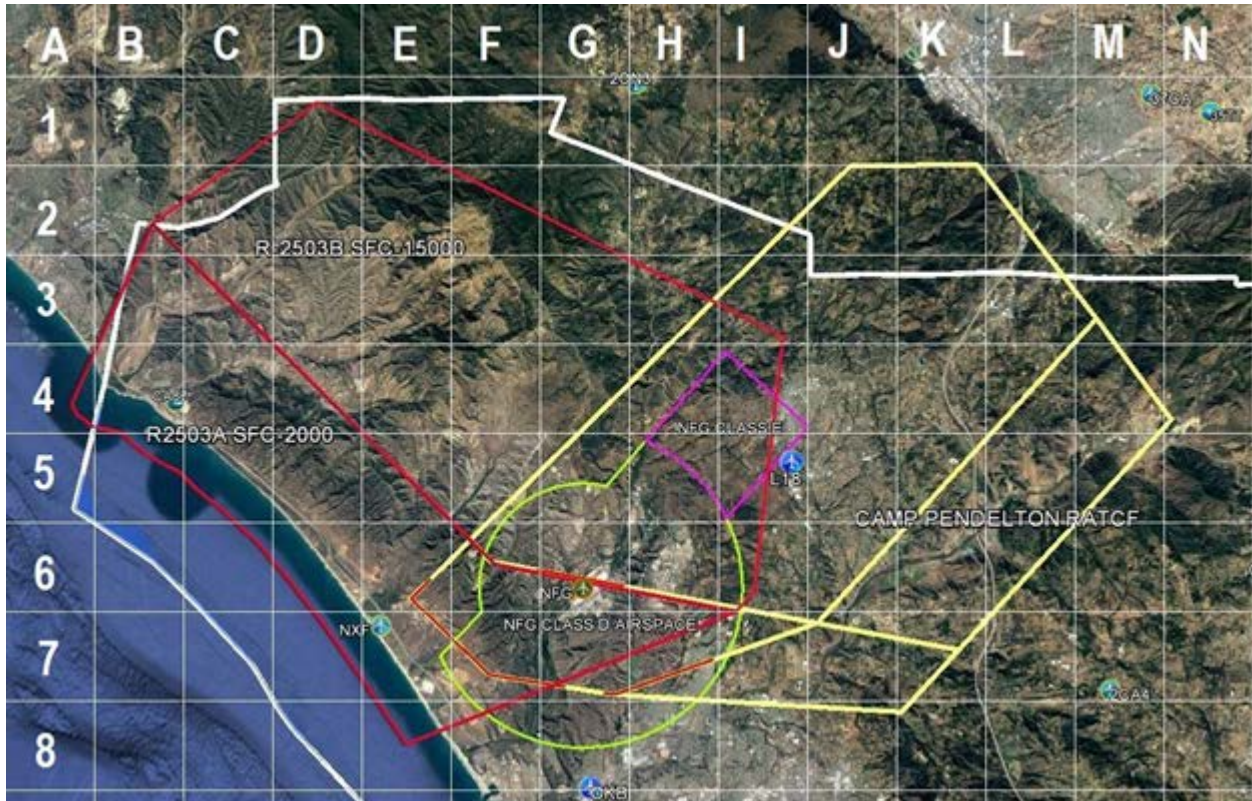
- (a) KNFG Contact and Operating Hours: [REDACTED] Base Operations [REDACTED] [REDACTED]. Mon and Fri 0800–1700 local time. Tue-Thu 0800 -midnight local time. Closed Sat, Sun and holidays.
- (b) UAS flight operations within the confines of R2503 A/B are prohibited when airspace is in use. Contact R2503 Airspace Manager at [REDACTED] and/or check airspace NOTAM with FSS when filing required D NOTAM at least 30 minutes prior to UAS operations. If unable to obtain status of airspace, remain clear.
- (c) UAS Operations within the perimeter of the base at Camp Pendleton are not authorized unless coordinated in advance with Camp Pendleton Base Operations at [REDACTED]

NOTE-

Coordinate UAS flight operations in Class G airspace with SOCAL TRACON

when ATCT/RATCF is closed.

- (d) Use grid map below (and in attachment 2) to provide UAS operating location and coordinate in accordance with ATC special Provision A5.



13. During those hours when KSDM, KSEE, KRNM, KCRQ, KMYF, KNRS, KNZY, or KNFG are closed and UAS operations will be in within the lateral confines of those airports depicted class D airspace, or NFG RATCF boundaries in class G airspace, ATC Provision A4 applies. If UAS operation will extend beyond ATCT/FCT/RATCF opening time, UAS PIC will contact appropriate ATCT/FCT/RATCF at opening time and coordinate UAS operation per ATC Provision A6 (30-minute prior coordination requirement is waived for this provision).
14. During those hours when KNKX ATCT is closed and UAS operations will be within Miramar Class B airspace ATC Provision A5 (b) applies. If UAS operation will extend beyond KNKX ATCT opening time, UAS PIC will contact KNKX ATCT at opening time and coordinate operational details per ATC Provision A6 (30-minute prior coordination requirement is waived for this provision).
15. The availability of an independent flight termination system, operations area location, radius of operations area, and altitude of operations, in conjunction with the required coordination in ATC Special Provisions A and D is an acceptable mitigation of 14 CFR 91.215 (b) (2) requirements concerning the absence of a Mode C transponder. This deviation is allowed as authorized by 14 CFR 91.215 (d).

16. DJI Phantom 2 UAS operations will not be conducted within a one half (1/2) mile radius of non-controlled airports, heliports, or water landing areas without additionally coordinating with the appropriate airport management approval.
17. If a review of NOTAMs during preflight actions (see Standard Provisions paragraphs C4) reveals another proponent operating in all, or part, of the intended operating area, the San Diego Sheriff's Department must de-conflict the intended operating area from the active operating area by contacting that proponent. Contact information may be obtained from the affected air traffic control facility, if not otherwise known.

C. Communication Requirements:

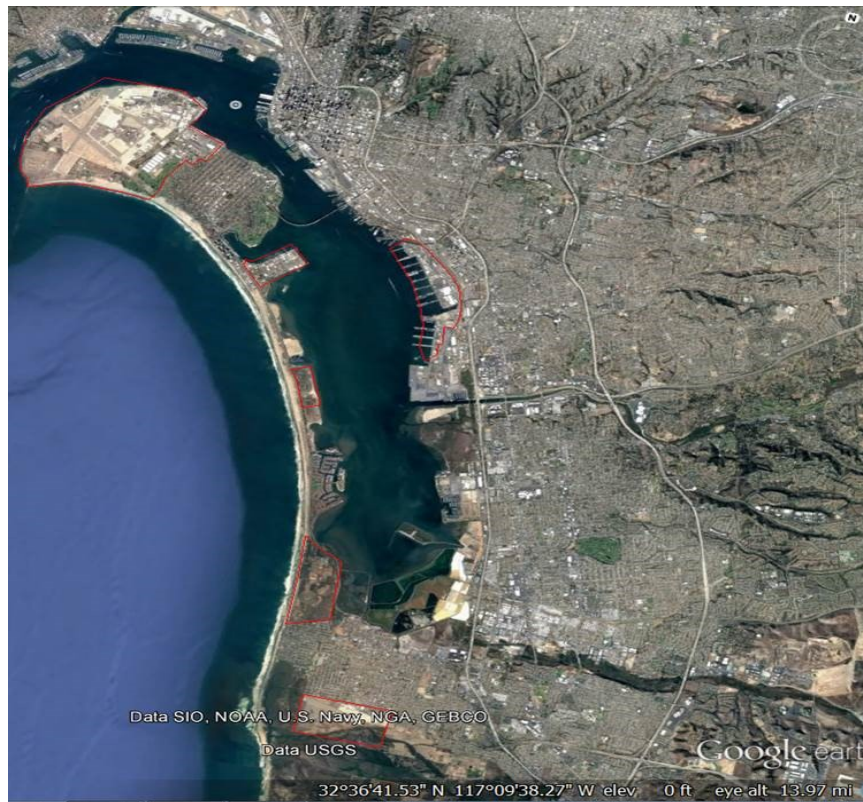
1. Based on area of UAS operation, ATCT/FCT may require direct two-way radio communication on VHF frequency:

KCRQ – 118.6 (Mhz)	
KSEE – 120.7 / 123.8 (Mhz)	KSDM – 128.25 (Mhz)
KRNM – 119.875(Mhz)	KMYF – 119.2 / 125.7 (Mhz)
KNZY - 135.1(Mhz)	KNRS – 120.65 (Mhz)
KNKX - 135.2 (Mhz)	KNFG – 128.775 (Mhz)
2. Based on area of operation, KSDM, KSEE, KRNM, KCRQ, KMYF, KNRS, KNZY, KNKX or KNFG may approve that proponent providing an on-site cell phone number, and proponent being able to immediately communicate via cellphone as an acceptable method of communication in lieu of two-way radio when operating within the ATCT/FCT Class B and D airspace.
3. When operating within 4nm of KSDM, KSEE, KRNM, KCRQ, KMYF, KNRS, KNZY, KNKX or KNFG airports during hours that ATCT/FCT is closed, UAS PIC must monitor respective CTAF frequency and make periodic position reports, including UAS position and altitude, during flight operations.
4. Air Traffic Control Special Provisions A, and D will be used in lieu of maintaining direct two-way communications with SOCAL TRACON and Los Angeles ARTCC outside of Class D and B airspace.

D. Procedural Requirements:

1. **UAS OPERATIONS IN KSAN CLASS B SURFACE AIRSPACE ARE PROHIBITED AT ALL TIMES.**
2. This airspace authorization does not relieve the remote pilots from the responsibility to check the airspace they are operating in and comply with all restrictions that may be present in accordance with see 14 CFR 107.45 and 107.49 (a)(2), such as restricted and Prohibited Airspace, Temporary Flight Restrictions, etc.

3. This authorization does not give permission to enter Temporary Flight Restriction (TFR), Special Security Instruction (SSI) airspace. Location and contact information for the TFR SSIs are depicted on the FAA website: <http://uas-faa.opendata.arcgis.com/>. Proponent must request permission and receive authorization via the contacts listed on the ARCGIS website prior to entering the TFR/SSI.



4. Coordination and de-confliction between Military Training Routes (MTR) and Special Use Airspace (SUA) is the operator's responsibility. When identifying an operational area the operator must evaluate whether an MTR or SUA will be affected. In the event the UAS operational area overlaps an MTR or SUA, the operator will contact the scheduling agency in advance to coordinate and de-conflict. Approval from the scheduling agency for MTR and non-regulatory SUA is not required. If prior coordination and de-confliction does not take place in advance, the operator must exercise extreme caution and remain vigilant of all MTRs and/ or SUA:
- (a) **UAS OPERATIONS WITHIN R-2503 A/B AIRSPACE ARE NOT AUTHORIZED WHEN AIRSPACE IS ACTIVE.** See NOTAM's for scheduled times. When feasible contact R-2503 airspace scheduler at [REDACTED] to coordinate.
- (b) Scheduling Agency contact information is as follows:

BASE OF MTR'S LISTED BEGIN AT 200 FEET AGL

MTR Number	Scheduling Agency	Phone Number	Segments	MTR Width
IR-217	MCAS Miramar, San Diego	[REDACTED]	I-K	5 NM
VR-1266	Yuma MCAS, Yuma, AZ	[REDACTED]	E-H	2 NM either side of centerline from E to F; 1 NM right and 2 NM left of centerline from F to G; 2 NM either side of centerline from G to H.
VR-1257	Strike Fighter Wing, U.S Pacific Fleet, NAS Lemoore	[REDACTED]	O-R	2 NM

*MTR widths are either side of centerline

Non-working hours Miramar call Miramar Scheduling [REDACTED]

NAS Lemoore hours 0730-1600(lcl) Mon-Fri [REDACTED]

Yuma MCAS Scheduling available 0700-2230L/1400-0530Z daily

For simplification of working hours amongst all facilities, call between 0800-1600local time for the applicable facility Mon-Fri.

5. Proponent will immediately comply with any instructions from ATC. ATC may at any time prohibit, suspend, or terminate UAS operations when deemed appropriate for safety of manned aircraft operating in Class B,D,G or E airspace. ATC will advise if and when UAS operations may resume.
6. The defined maximum altitude for UAS operations is 400 feet AGL and below. ATC can reduce this altitude if deemed operationally necessary either before or during UAS operations.
7. UAS flight operations are prohibited when other manned aircraft are operating within the defined operating area. UAS operations must remain well clear of manned aircraft, airport traffic patterns, and will not cross over any, runway, taxiway, unless otherwise coordinated.
8. UAS training missions are not authorized in Class B or D airspace or within four (4) NM of those airports listed in this COA when airspace is class G.

9. The use of a water craft based visual observer is approved with the following requirements:
 - (a) Because the water craft is moving, caution must be used to ensure all of the conditions for land/chase based observers are used.
 - (b) The UAS PIC and the Visual Observer must be co-located.
 - (c) The UAS PIC or the Visual Observer must not be the operator of the watercraft.
 - (d) UAS operations from watercraft must be over sparsely populated areas.
 - (e) The lost link profile must be updated to ensure that the UAS does not fly away from the observers and remains within visual line of sight of the UAS PIC and the Visual Observer.
 - (f) Night operations over water must comply with previous requirements and CFR 91.209.
10. This COA authorizes DJI Phantom 2 UAS flight operations strictly within a “defined incident perimeter” in direct support of public safety activities as described within this Certificate of Waiver or Authorization.
11. A “defined incident perimeter” is described as a location identified via a Very High Frequency Omnidirectional Range (VOR) Radial/Distance Measuring Equipment (DME) fix or latitude/longitude. This location has a defined perimeter to be determined based on the scope of the operation and a defined operational ceiling at or below 400 feet AGL or as coordinated.
12. UAS operations must remain within this “defined incident perimeter” controlled by the proponent at or below 400 feet AGL or as coordinated. The San Diego Sheriff’s Department and supporting first responder/safety agencies will discover and manage all risks and associated liabilities that exist within the defined incident perimeter and must be legitimately mitigated to assure the safety of people and property.
13. To reiterate provision stated provisions above (not to supersede) the DJI Phantom 2 UA Operations must be conducted within visual line of sight from the position(s) of the PIC and/or Observer(s) at all times. The PIC and all Observers must maintain sufficient visual contact with the DJI Phantom 2 UA in order to determine its attitude, altitude, and direction of flight and ensure that the DJI Phantom 2 UA remains within the “defined incident perimeter”. “Out of Sight”, or “Behind the Obstruction” flight operations are prohibited.
14. Pursuit missions outside the secured, defined incident perimeter are prohibited.
15. DJI Phantom 2 UA operations must be offset as needed to ensure the orbit or flight path of the UA does not incur a risk of injury to persons or property along its flight path. A

mitigation strategy may include but is not limited to evacuation of persons from within the incident perimeter by legal authority. This Authorization does not waive 91.119.

16. DJI Phantom 2 UA flight operations are prohibited when other manned aircraft are operating within the incident perimeter.
17. If an emergency situation occurs that causes the DJI Phantom 2 UA to depart the defined incident perimeter/operations area, the PIC must immediately notify the Air Traffic Control facility having jurisdiction over the operating area via phone or on the appropriate Air Traffic Control frequency.
18. The Pilot in Command is authorized to operate at less than the minimums as prescribed in FAR 91-119, paragraph (d) if the operation is conducted without hazard to persons or property on the surface.
19. The presence of observers during scenario based training, other than initial or recurrent Pilot-in-Command and Observer training is authorized provided the following provisions are complied with:
 - (a) Observers (i.e. the public) will receive a safety briefing that addresses the mission intent, safety barriers, non-interference with any LEA mission personnel, and emergency procedures in the event of an incident or accident.
 - (b) Observers will be directed to and contained within a specific observation point that ensures risk of injury is minimized and assures non- interference with the sUAS training mission.
 - (c) Proponent will ensure that observers do not engage in conversations, discussions, interviews or distractions of any crewmember or mission personnel from the performance of his/her duties or interfere in any way with the proper conduct of those duties.
 - (d) Proponent will limit the number of observers to that which can be adequately monitored and protected by the personnel and resources onsite.
 - (e) ALL of the existing provisions, conditions and mitigations of this Training COA is implemented and complied with.

E. Emergency/Contingency Procedures:

1. Emergency or Fly-Away Procedures:
 - (a) In the event of a Fly-Away or other emergency scenario, the PIC will immediately notify the air traffic control facility having jurisdictional control over the operating area via assigned VHF frequency or by telephone (see ATC facility information chart in ATC Provision A5 for telephone contact information).
 - (b) The PIC will state pilot intentions, and provide the following:

- (1) The nature of the emergency.
 - (2) UAS last know position, altitude, and direction of flight.
 - (3) Maximum remaining flight time.
2. Lost Link Procedures: In the event of a lost link, the PIC will immediately notify the air traffic control facility having jurisdictional control over the operating area via assigned VHF frequency or by telephone (see ATC facility information chart for telephone contact information), and provide the location, maximum altitude, programmed lost link maneuvers, state pilot intentions, and comply with the following provisions:
- (a) The aircraft autopilot will enter a fail-safe mode within three second of the lost link condition being detected and “auto land.” The aircraft will place itself in a stationary hover and begin a slow descent. Through feedback via onboard inertial sensors, when the aircraft touches down and lands, its motors/rotors will power off.
 - (b) The unmanned aircraft lost link mission will not transit or orbit over populated areas.
 - (c) Lost link programmed procedures will avoid unexpected turn-around and/or altitude changes and will provide sufficient time to communicate and coordinate with ATC.
 - (d) Lost link orbit points shall not coincide with the centerline of Victor airways.
3. Loss of Sight: If a visual observer loses sight of the unmanned aircraft (UA), the Pilot-in-command of the UA must initiate and follow lost link procedures as stated in the COA or immediately terminate the flight.
4. Loss of Communication: If the visual observer is not within normal speaking distance of the PIC, any loss of communication between the observer and the PIC, the PIC will execute lost link procedures. Once communications are reestablished, the mission may resume.

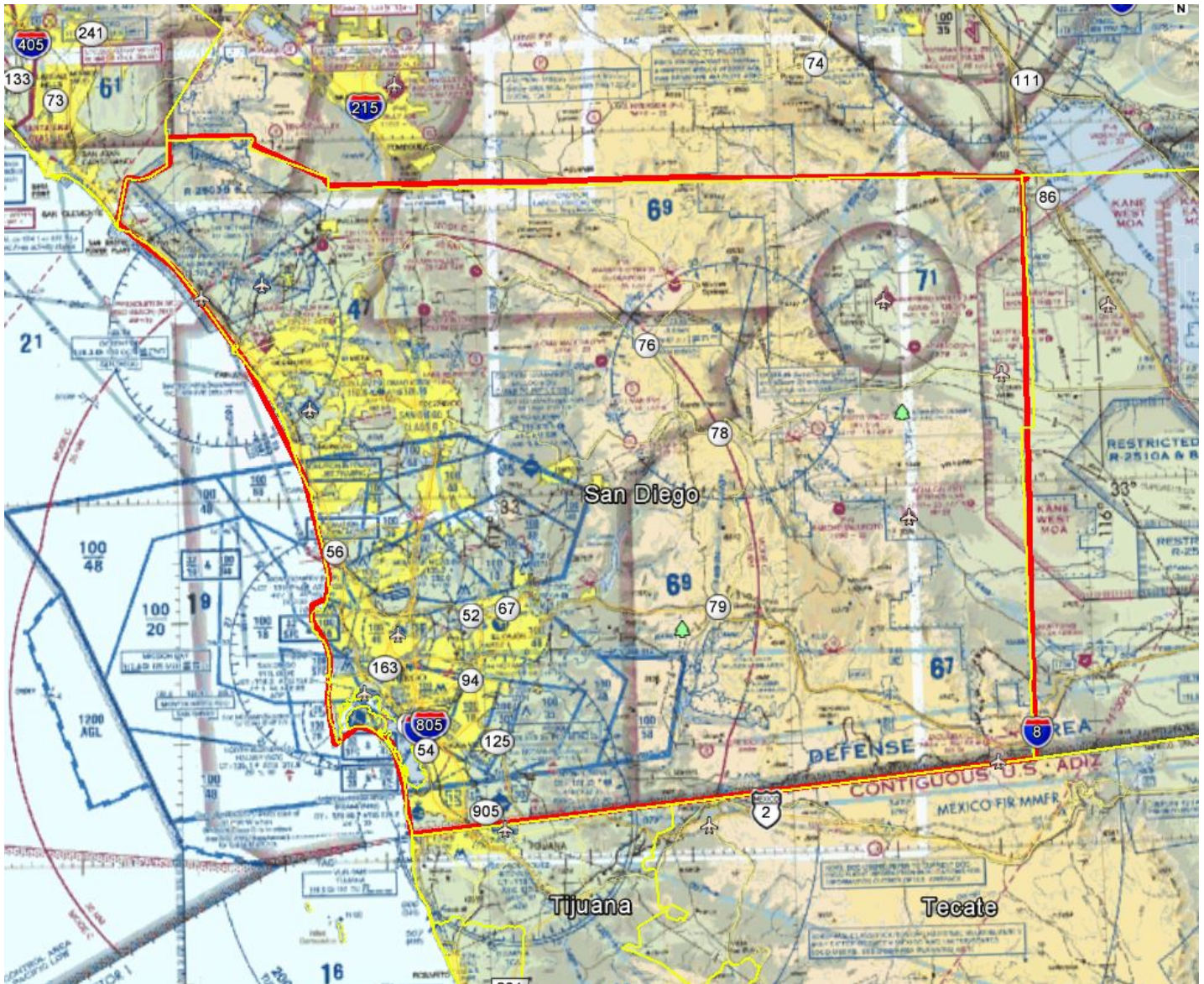
F. Operations Area: Within the confines of San Diego County, CA . See Attachment 1.

AUTHORIZATION

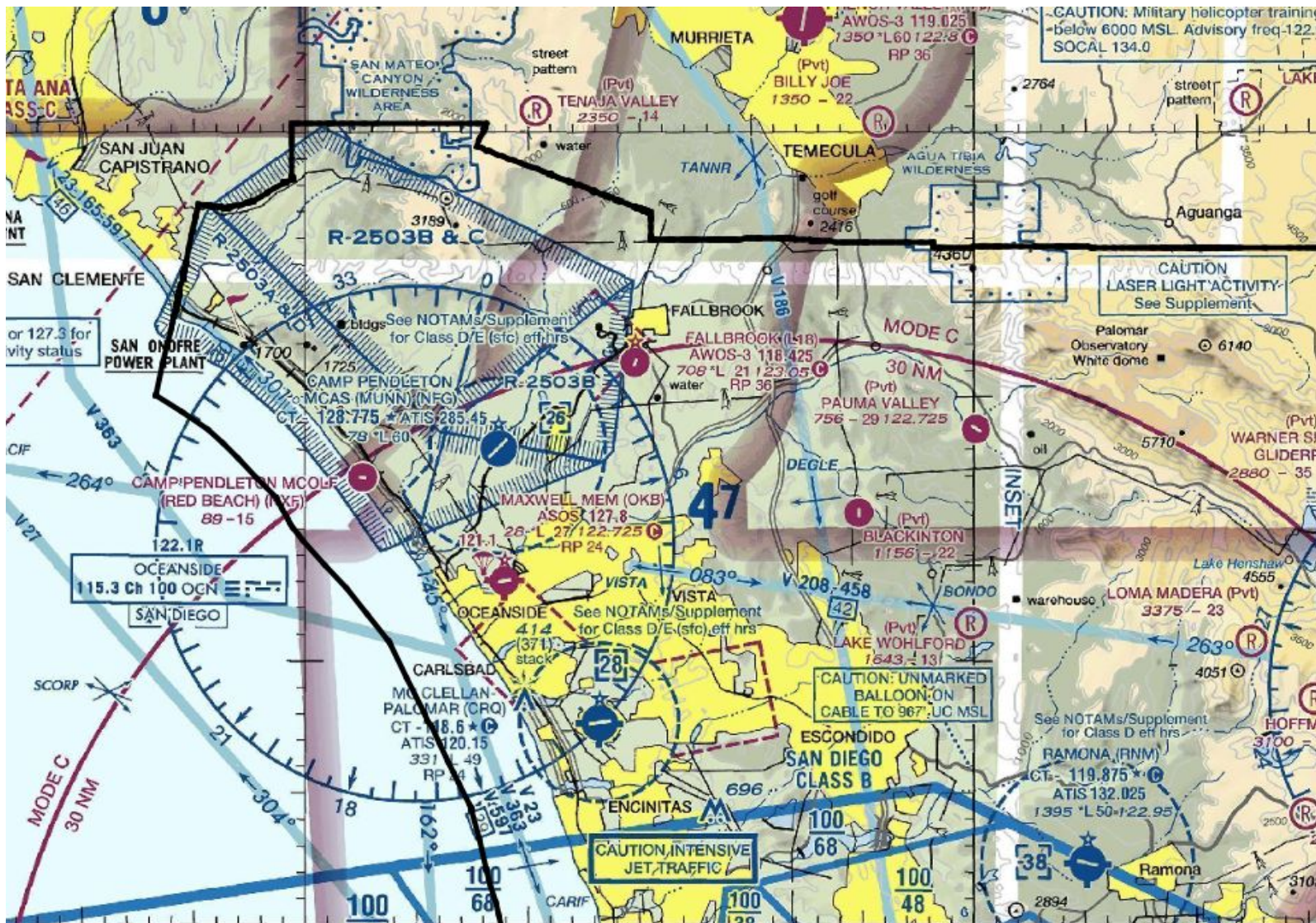
This Certificate of Waiver or Authorization does not, in itself, waive any Title 14 Code of Federal Regulations, nor any state law or local ordinance. Should the proposed operation conflict with any state law or local ordinance, or require permission of local authorities or property owners, it is the responsibility of the San Diego Sheriff’s Department to resolve the matter. This COA does not authorize flight within regulatory Special Use airspace without approval from the using agency. The San Diego Sheriff’s Department is hereby authorized to operate the DJI Phantom 2 Unmanned Aircraft System in the operations area depicted in the Activity section of this attachment.

Attachment 1

**WITHIN THE CONFINES OF SAN DIEGO COUNTY
400 FEET AGL-BELOW (OR AS COORDINATED)**

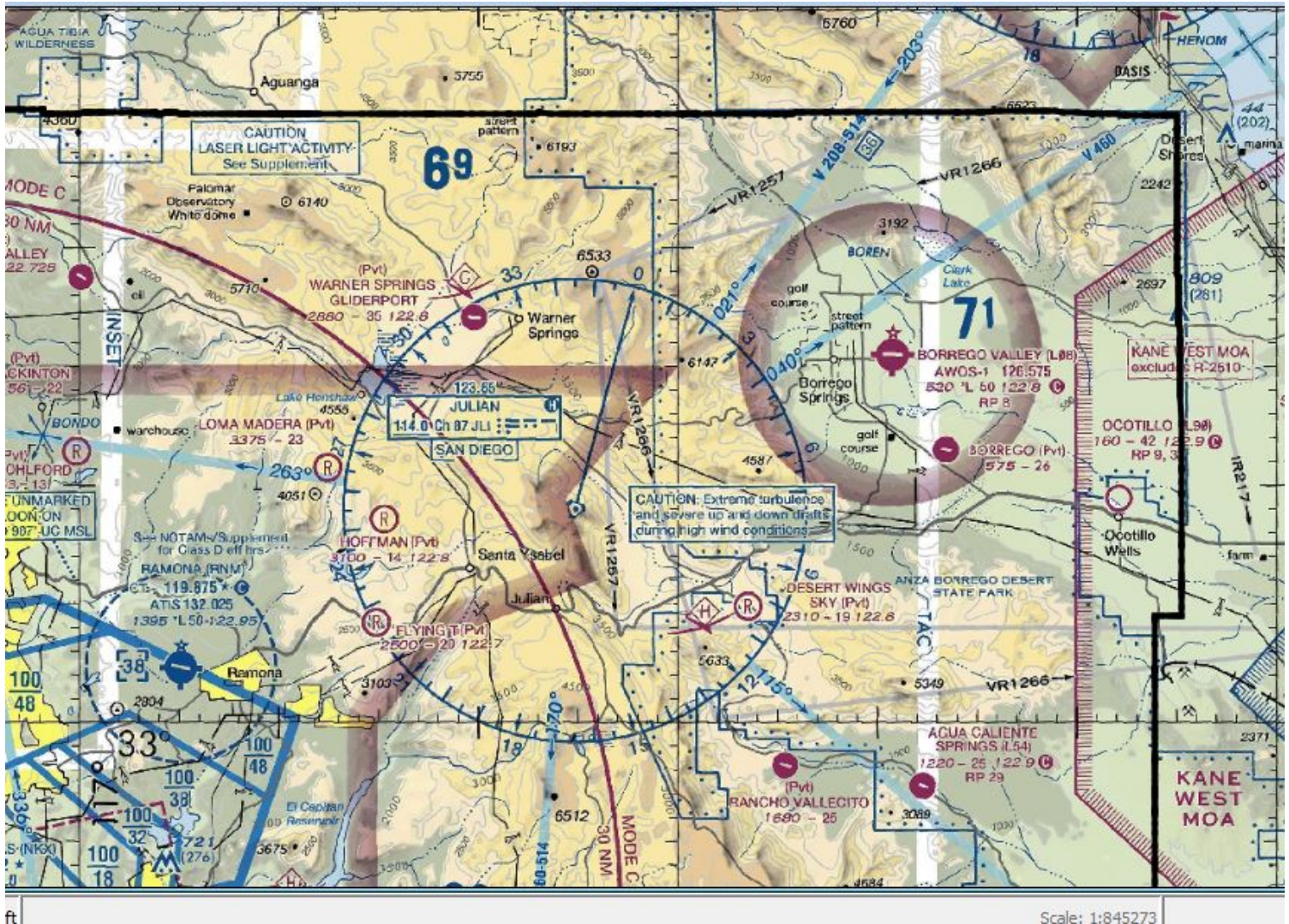


NORTHWEST SAN DIEGO COUNTY



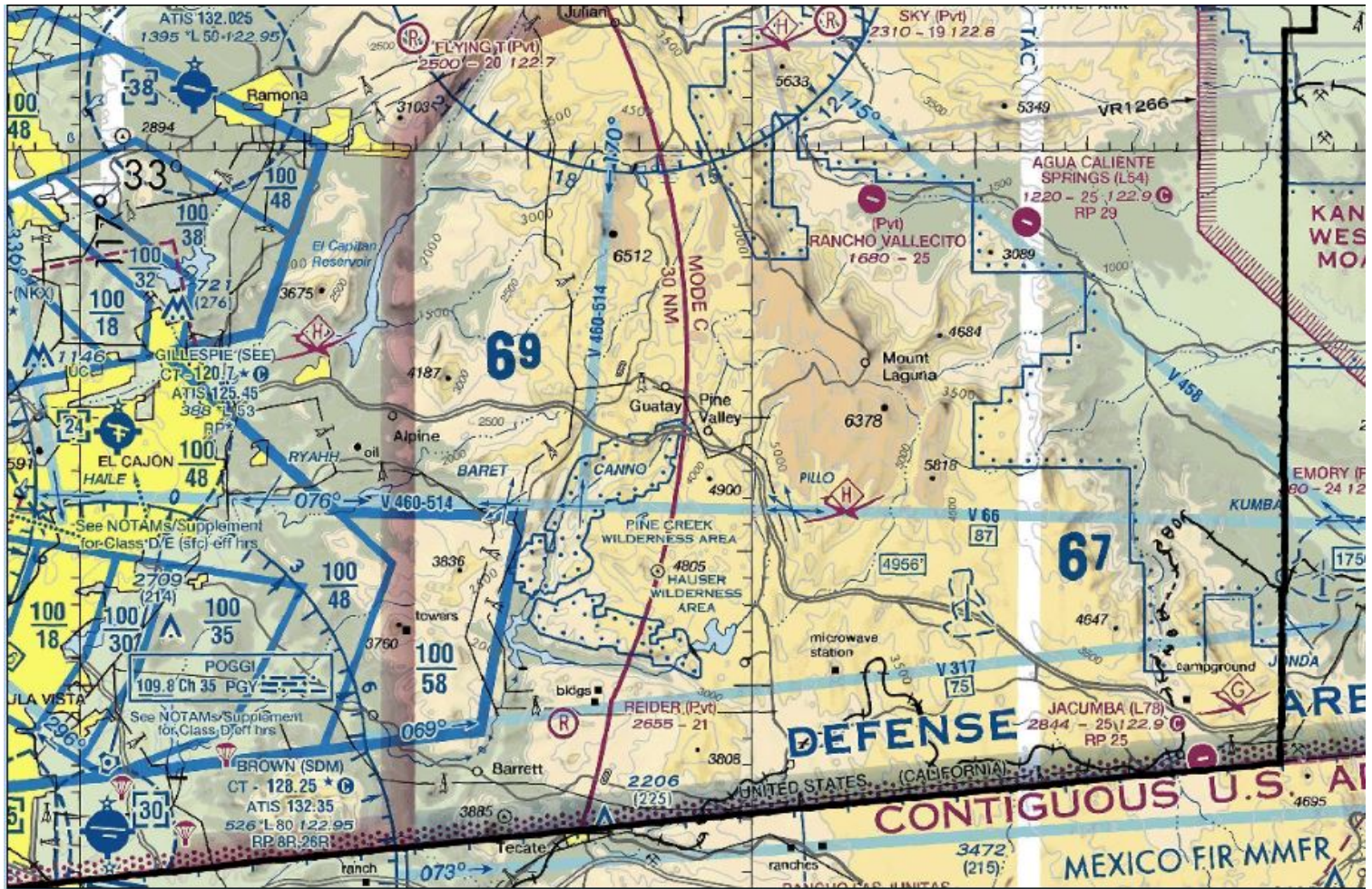
Attachment 1

NORTHEAST SAN DIEGO COUNTY

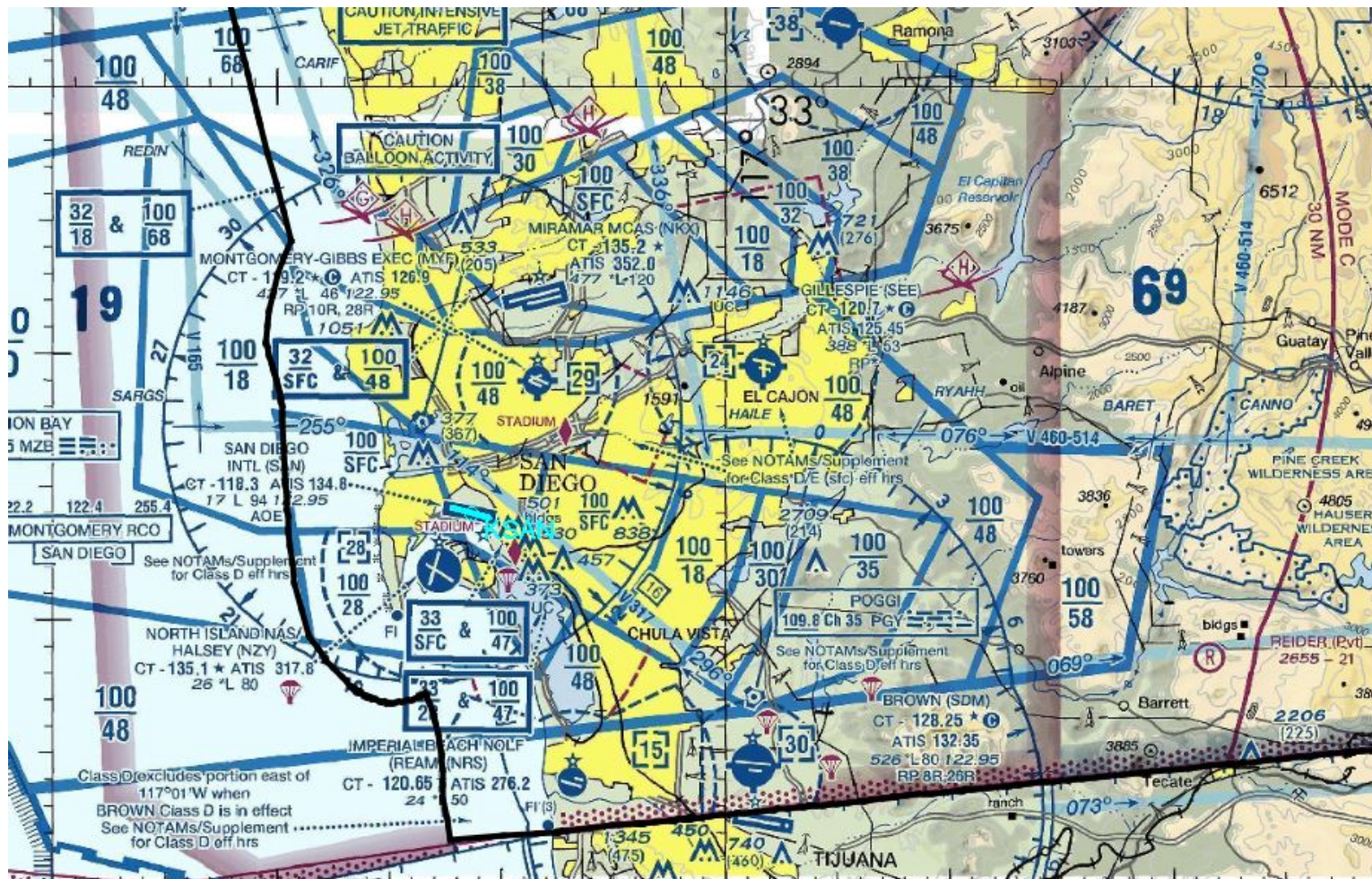


Attachment 1

SOUTHEAST SAN DIEGO COUNTY



SOUTHWEST SAN DIEGO COUNTY



UAS OPERATIONS IN KSAN CLASS B SURFACE AIRSPACE ARE PROHIBITED AT ALL TIMES.

Lindbergh ATCT (KSAN)-[REDACTED]-open continuous (Class B airspace).

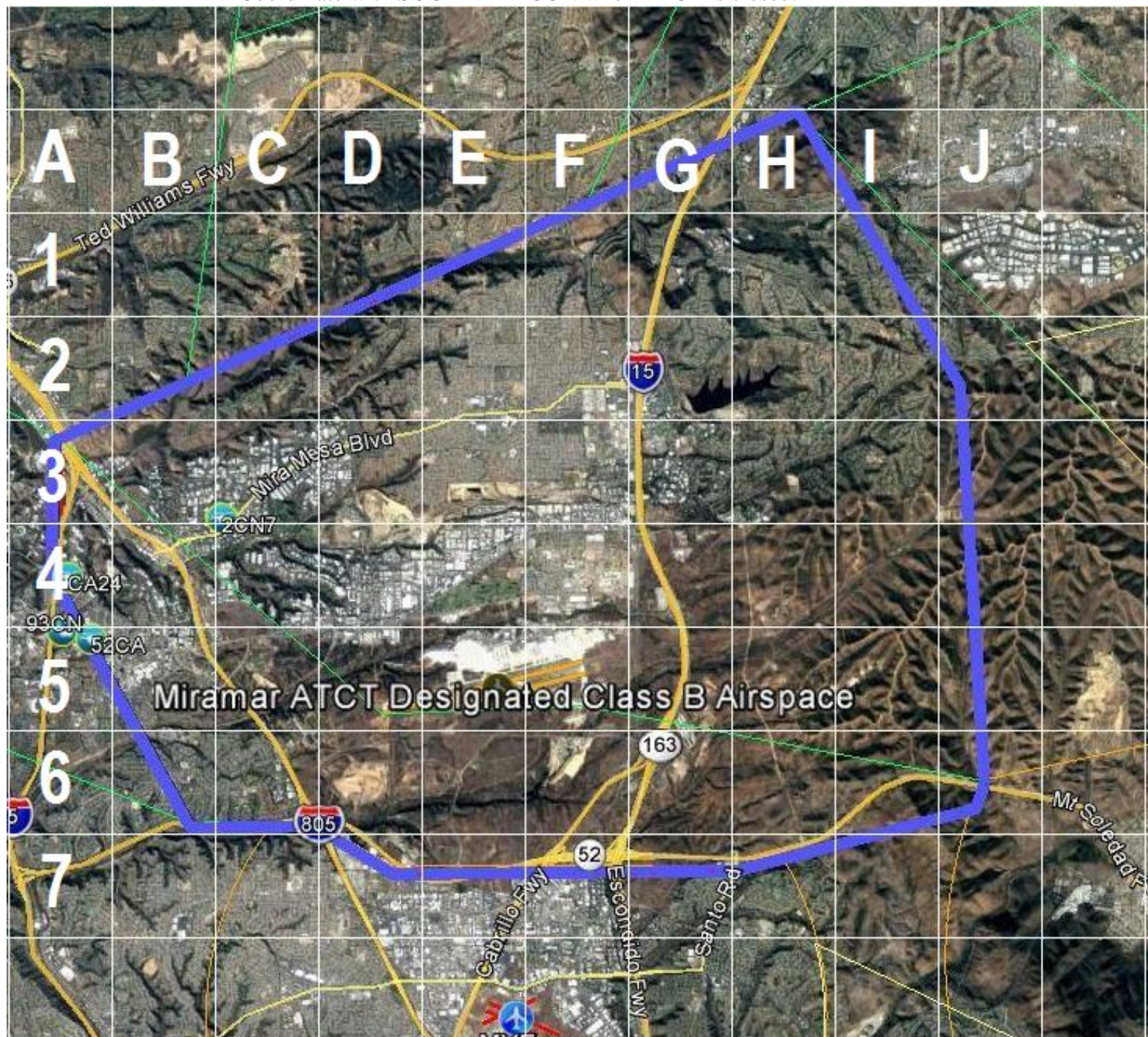


Attachment 2 (GRID MAPS)

Miramar MCAS (KNKX) - [REDACTED]

Base Operations [REDACTED] - MCAS Miramar ATCT/GCA- open 0800-0030 (M-Th), 0830-1800 (Fri), Closed (Sat), and 1400-1800 (Sun). (Class B airspace).

Coordinate with SOCAL TRACON when ATCT is closed.



Attachment 2 (GRID MAPS)

NORTH ISLAND (KNZY) AND IMPERIAL BEACH NOLF (KNRS) CLASS D Grid map

North Island NAS ATCT (KNZY) - [REDACTED]

NZY OPERATING HOURS: Monday 0630 - Thursday 24 hrs., Friday 0000-2200, Saturday & Sunday 0800-2200. Operating hours extended via NOTAM for ship board divert alert windows and SAM/JOSAC/NALO flights. (Class D airspace).

Imperial Beach NOLF (KNRS) - [REDACTED]

NRS OPERATING HOURS: Monday - Friday 0800-2230 (close at 2300 during DST, 6 months of the year), Saturday & Sunday CLOSED. (Class D airspace).

(USE THIS MAP FOR COORDINATION)

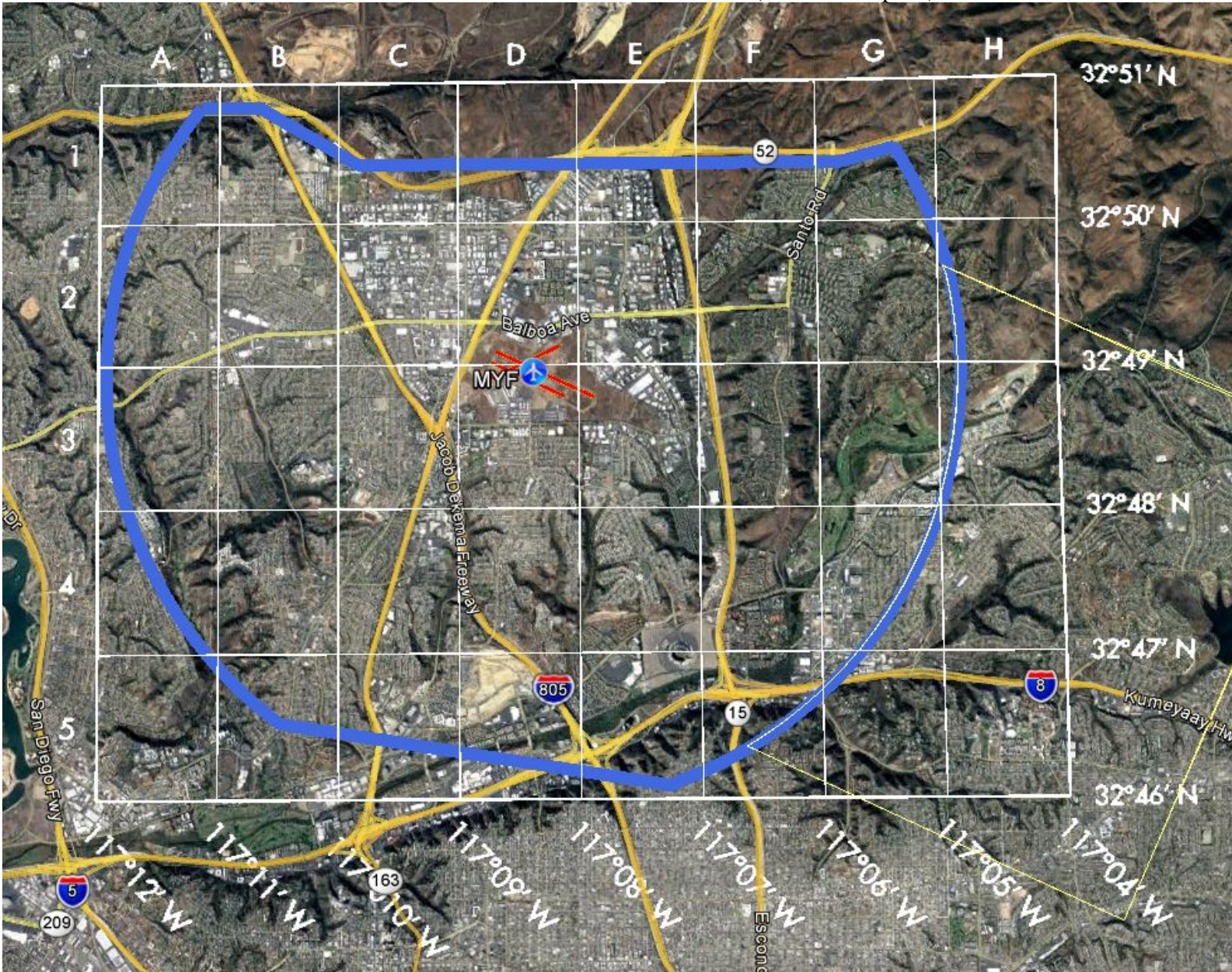


Attachment 2 (GRID MAPS)

MONTGOMERY-GIBBS EXECUTIVE (KMYF) CLASS D Grid Map

Montgomery Field ATCT (KMYF) [REDACTED] - open 0800-2000 local time
(Class D airspace)

Coordinate with SOCAL TRACON when ATCT is closed (Class G airspace).



Attachment 2 (GRID MAPS)

CARLSBAD –MCCLELLAN PALOMAR (KCRQ) CLASS D GRID MAP

Palomar ATCT (KCRQ) - [REDACTED] - open 0700-2200 local time
(Class D airspace)

Coordinate with SOCAL TRACON when ATCT is closed (Class G airspace).

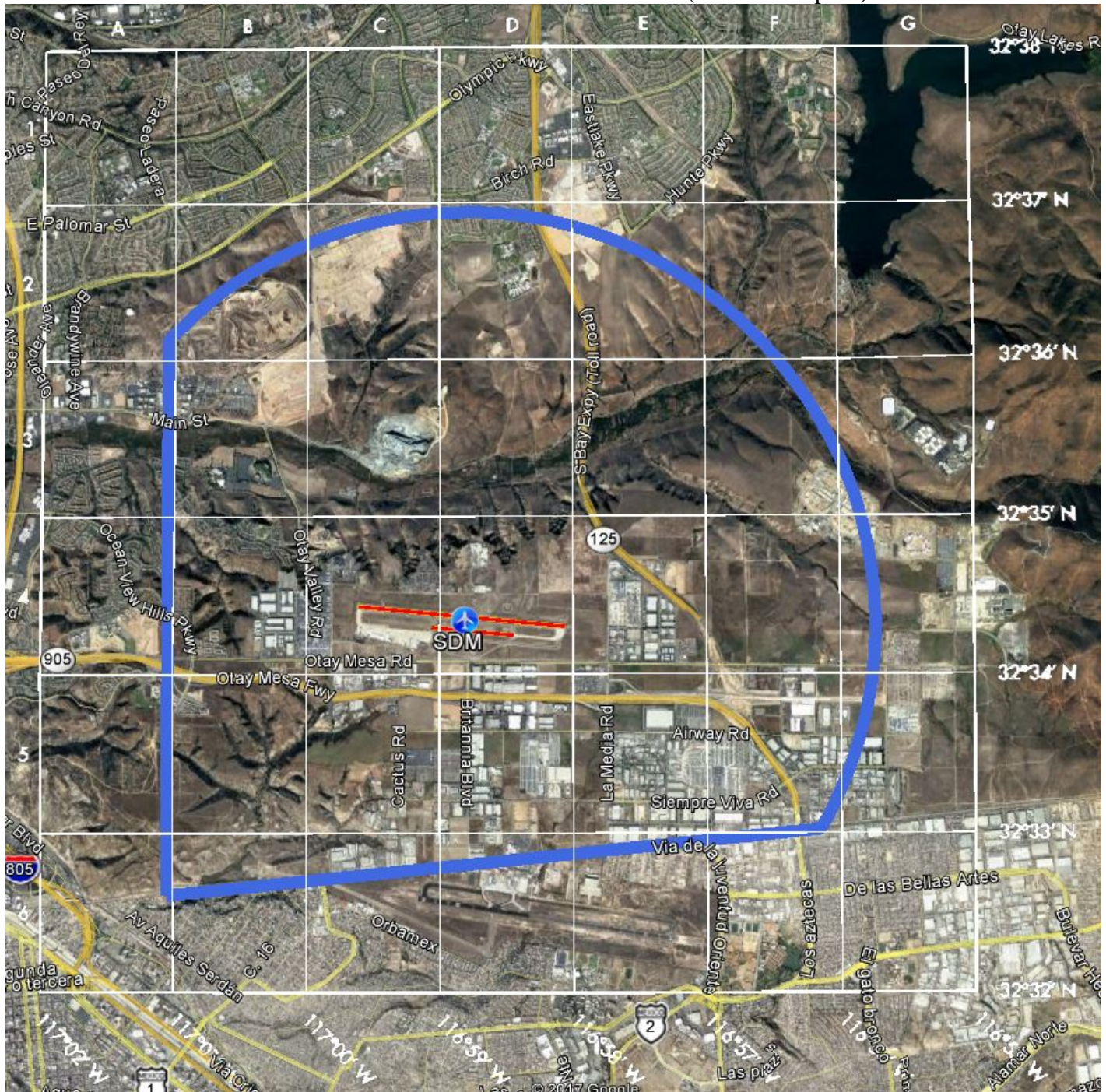


Attachment 2 (GRID MAPS)

BROWN FIELD MUNICIPAL (KSDM) CLASS D Grid Map

Brown Field ATCT (KSDM) - [REDACTED] - open 0800-2000 local time
(Class D airspace)

Coordinate with SOCAL TRACON when ATCT is closed (Class G airspace)

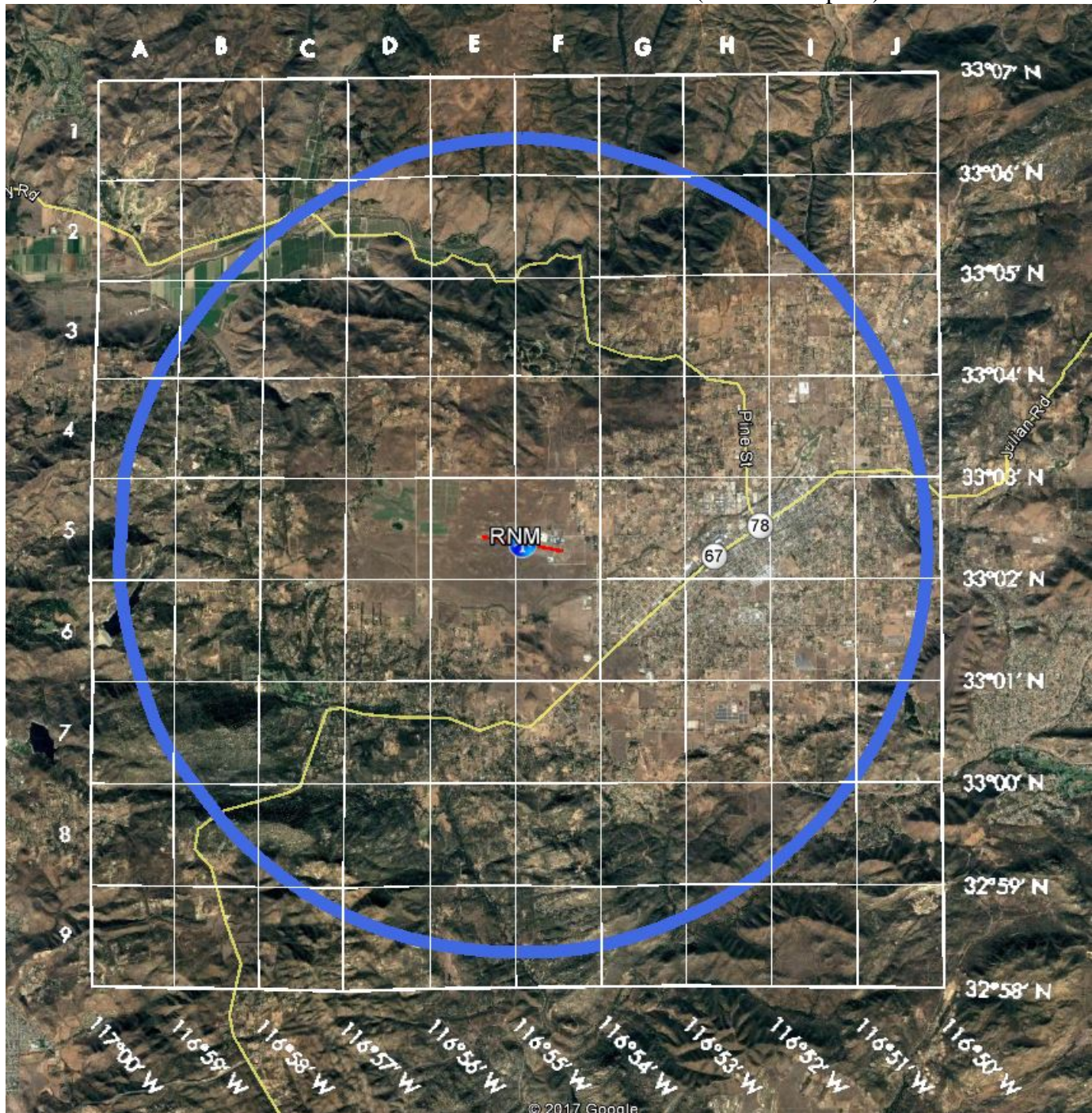


Attachment 2 (GRID MAPS)

RAMONA (KRNM) CLASS D Grid map

Ramona ATCT (KRMN) - [REDACTED] - open 0800-2000 local time
(Class D airspace)

Coordinate with SOCAL TRACON when ATCT is closed (Class G airspace).

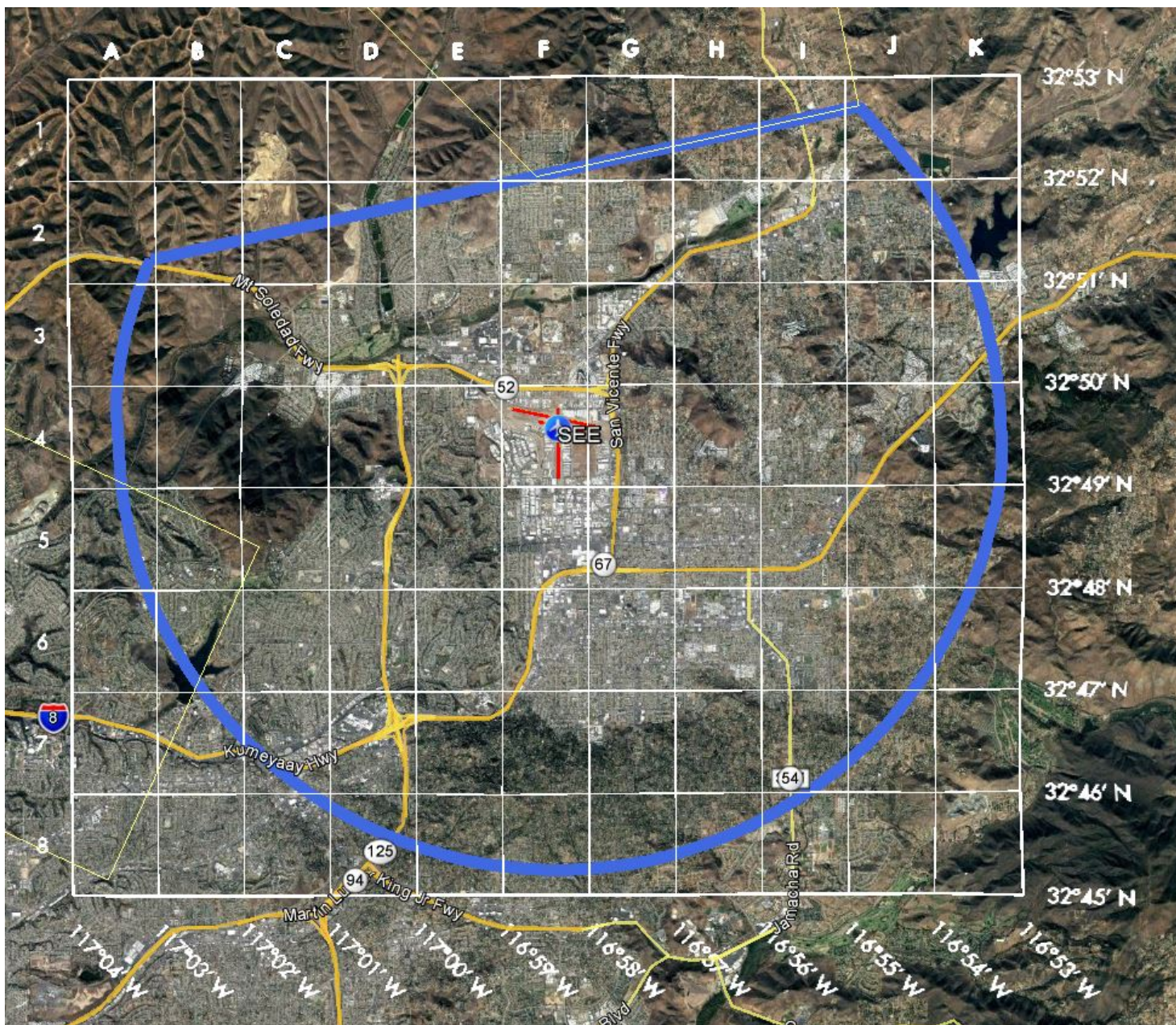


Attachment 2 (GRID MAPS)

GILLESPIE FIELD(KSEE) Grid Map

Gillespie ATCT (KSEE) - [REDACTED] - open 0700-2100 local time
(Class D airspace)

Coordinate with SOCAL TRACON when ATCT is closed (Class G airspace)



Attachment 2 (GRID MAPS)

CAMP PENDELTON MCAS (KNFG)/SHOWING RESTRICTED AIRSPACE AND RATCF

MCAS Camp Pendleton Radar Air Traffic Control Facility (ATCT/RATCF) -
[REDACTED] Base Operations [REDACTED]. Mon and Fri 0800-1700
local time. Tue-Thu 0800 -midnight local time. Closed Sat, Sun and holidays.

